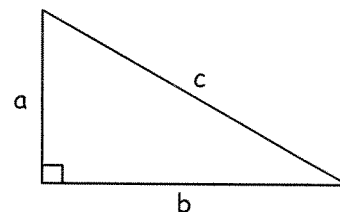


UNIT 6 RIGHT TRIANGLES REVIEW

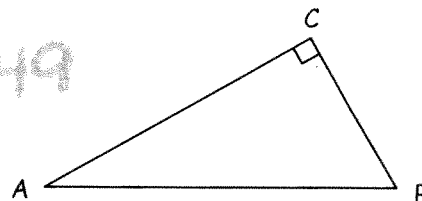
1. Find the value of  $c$  in the diagram given  $a = 4$  and  $b = 7$ .

$$\sqrt{65} \approx 8.06$$

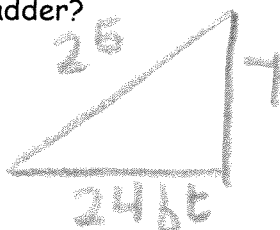


2. In the diagram,  $BC = 3$  and  $AB = 9$ . What is the length of  $\overline{AC}$ ?

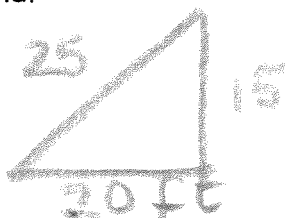
$$6\sqrt{2} \approx 8.49$$



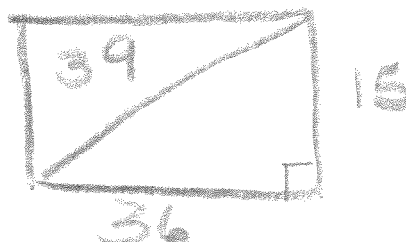
3. If a 25 foot ladder is placed against a wall so that it reaches a height of 7 feet, how far away from the wall is the bottom of the ladder?



4. A 25 foot wire is attached to the top of a 15 foot pole. How far from the bottom of the pole is the wire anchored into the ground?

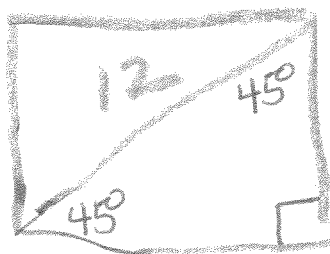


5. Given a rectangle with a length of 36 and width of 15, find the diagonal.



6. A square has a diagonal of length 12. What is the perimeter of the square?

$$24\sqrt{2} \approx 33.94$$



$$12 = s \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

UNIT 6 RIGHT TRIANGLES REVIEW

For problems 7 - 10, the following sets of numbers indicate the lengths of the sides of a triangle. Determine whether the triangle acute, obtuse, right, or not a triangle.

7. 5, 6, 11

not a  $\Delta$

8. 32, 15, 24

obtuse

$$24^2 < 32^2 > 15^2 + 24^2$$

9.  $\sqrt{5}, \sqrt{2}, \sqrt{3}$

rt

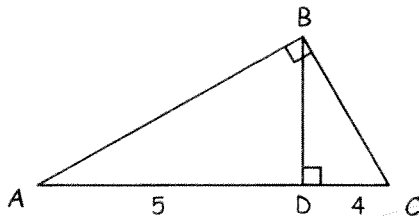
10. 8, 12, 14

acute

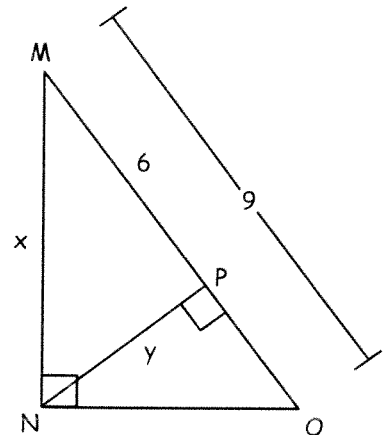
11. What is the geometric mean of 4 and 12?

12. What is the geometric mean between 10 and  $1/5$ ?

13. In the diagram,  $AD = 5$  and  $DC = 4$ . What is the length of  $\overline{BD}$ ?



14. In the diagram,  $MP = 6$  and  $MO = 9$ . Find  $x$  and  $y$ .



15. Given  $\triangle FGH$  shown, find the following trigonometric ratios in simplest form.

$\sin G = \frac{3}{5}$

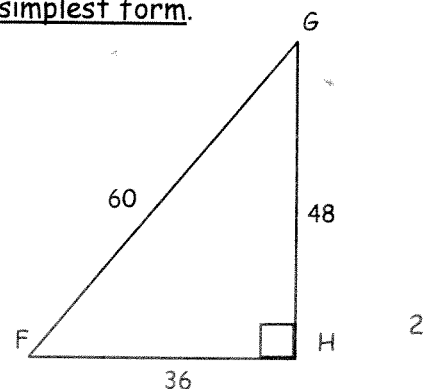
$\sin F = \frac{4}{5}$

$\cos G = \frac{4}{5}$

$\cos F = \frac{3}{5}$

$\tan G = \frac{3}{4}$

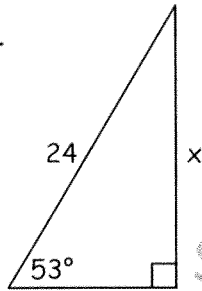
$\tan F = \frac{4}{3}$



UNIT 6 RIGHT TRIANGLES REVIEW

For problems 16 - 24, solve for x.

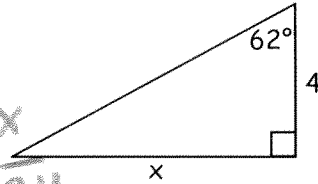
16.



$$\sin 53 = \frac{x}{24}$$

19.17

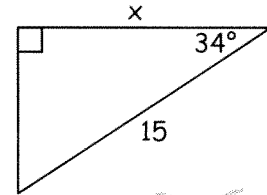
17.



$$\tan 62 = \frac{x}{4}$$

7.52

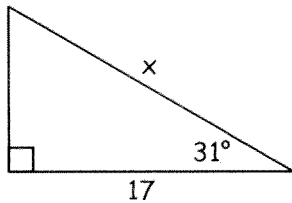
18.



$$\cos 34 = \frac{x}{15}$$

12.44

19.

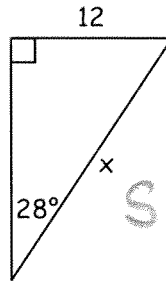


$$\cos 31 = \frac{17}{x}$$

$$x = \frac{17}{\cos 31}$$

19.83

20.

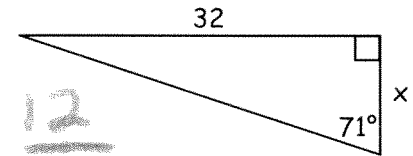


$$\sin 28 = \frac{12}{x}$$

$$x = \frac{12}{\sin 28}$$

25.56

21.

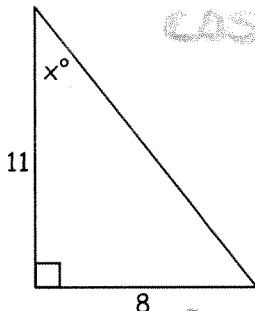


$$\tan 71 = \frac{32}{x}$$

$$x = \frac{32}{\tan 71}$$

11.02

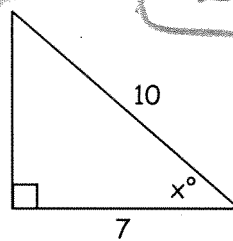
22.



$$\tan^{-1} \frac{8}{11} = x$$

36 degrees

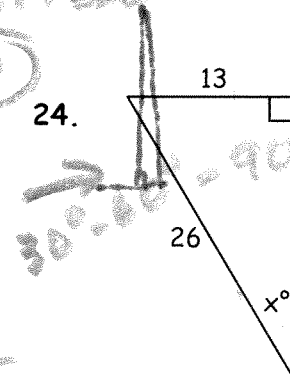
23.



$$\cos^{-1} \frac{7}{10} = x$$

46 degrees

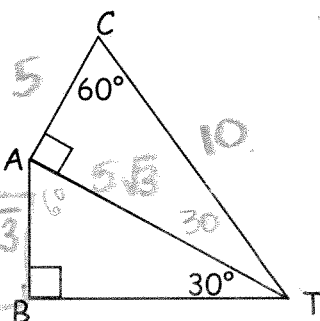
24.



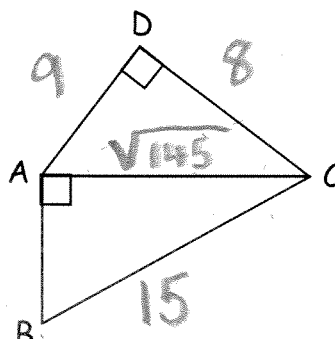
$$\sin^{-1} \frac{13}{26} = x$$

30 degrees

25. In the diagram, CT = 10. What is the length of AB?



26. In the diagram, AD = 9, DC = 8 and BC = 15. Find AB.



$$15^2 = AB^2 + (\sqrt{145})^2$$

$$225 = AB^2 + 145$$

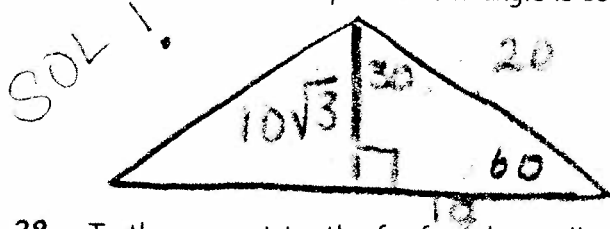
$$80 = AB^2$$

$$AB = 4\sqrt{5}$$

SOL!

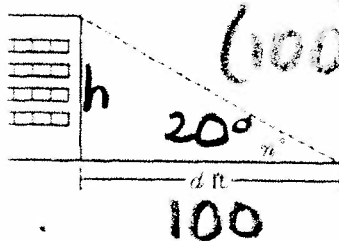
UNIT 6 RIGHT TRIANGLES REVIEW

27. An altitude of an equilateral triangle is  $10\sqrt{3}$  units. What is the perimeter of the equilateral triangle?



60 units

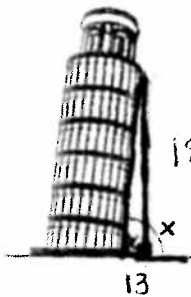
28. To the nearest tenth of a foot, how tall is a building 100 feet away ( $d = 100$ ) if the top of the building is sighted at a  $20^\circ$  angle ( $n = 20$ )?



$$(100) \tan 20^\circ = \frac{h}{100}$$

$$h = 36.4 \text{ ft}$$

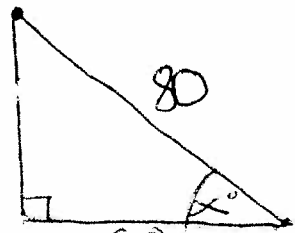
29. If an object is dropped from the top of the leaning tower of Pisa, it will land about 13 feet from the base of the tower. If the length (i.e., height) of the tower is 183 ft, what is the angle that the tower makes with the ground?



$$\tan^{-1} x^\circ = \frac{183}{13}$$

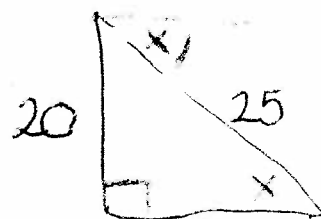
$$85.9^\circ$$

30. Suppose a tree casts a shadow of length 60 feet. If the distance from the top of the tree to the end of the shadow is 80 feet, what is the angle of elevation from the shadow to the top of the tree?



$$\cos^{-1} x^\circ = \frac{60}{80} = 41.4^\circ$$

31. A bird sits on top of a lamppost 20 meters tall. The distance from the bird to the feet of an observer is 25 meters. Find the angle of depression from the bird to the feet of the observer.



$$\sin^{-1} x^\circ = \frac{20}{25} = \frac{4}{5}$$

$$53.13^\circ$$